



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

**Note to Reader**

**Background:** As part of its effort to involve the public in the implementation of the Food Quality Protection Act of 1996 (FQPA), which is designed to ensure that the United States continues to have the safest and most abundant food supply.

EPA is undertaking an effort to open public dockets on the organophosphate pesticides. These dockets will make available to all interested parties documents that were developed as part of the U.S. Environmental Protection Agency's process for making reregistration eligibility decisions and tolerance reassessments consistent with FQPA. The dockets include preliminary health assessments and, where available, ecological risk assessments conducted by EPA, rebuttals or corrections to the risk assessments submitted by chemical registrants, and the Agency's response to the registrants' submissions.

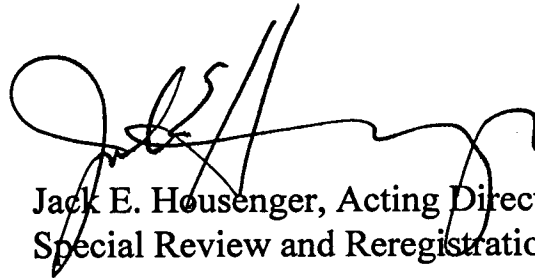
The analyses contained in this docket are preliminary in nature and represent the information available to EPA at the time they were prepared. Additional information may have been submitted to EPA which has not yet been incorporated into these analyses, and registrants or others may be developing relevant information. It's common and appropriate that new information and analyses will be used to revise and refine the evaluations contained in these dockets to make them more comprehensive and realistic. The Agency cautions against premature conclusions based on these preliminary assessments and against any use of information contained in these documents out of their full context. Throughout this process, If unacceptable risks are identified, EPA will act to reduce or eliminate the risks.

There is a 60 day comment period in which the public and all interested parties are invited to submit comments on the information in this docket. Comments should directly relate to this organophosphate and to the information and issues available in the information docket. Once the comment period closes, EPA will review all comments and revise the risk assessments, as necessary.

These preliminary risk assessments represent an early stage in the process by which EPA is evaluating the regulatory requirements applicable to existing pesticides. Through this opportunity for notice and comment, the Agency hopes to advance the openness and scientific soundness underpinning its decisions. This process is designed to assure that America continues to enjoy the safest and most abundant food supply. Through implementation of EPA's tolerance reassessment program under the Food Quality Protection Act, the food supply will become even safer. Leading health experts recommend that all people eat a wide variety of foods, including at least five servings of fruits and vegetables a day.

**Note:** This sheet is provided to help the reader understand how refined and developed the pesticide file is as of the date prepared, what if any changes have occurred recently, and what new information, if any, is expected to be included in the analysis before decisions are made. **It is not meant to be a summary of all current information regarding the chemical.** Rather, the sheet provides some context to better understand the substantive material in the docket ( RED chapters, registrant rebuttals, Agency responses to rebuttals, etc.) for this pesticide.

Further, in some cases, differences may be noted between the RED chapters and the Agency's comprehensive reports on the hazard identification information and safety factors for all organophosphates. In these cases, information in the comprehensive reports is the most current and will, barring the submission of more data that the Agency finds useful, be used in the risk assessments.

A handwritten signature in black ink, appearing to read 'J. Housenger', is written over the typed name and title.

Jack E. Housenger, Acting Director  
Special Review and Reregistration Division

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF

PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

October 18, 1999

MEMORANDUM

SUBJECT: **Mevinphos.** (Chemical ID No. 015801/List A Reregistration Case No. 0250).  
Dietary Exposure and Risk Analyses for the HED Preliminary Human Health Risk  
Assessment. No MRID #. DP Barcode No. D259803.

FROM: Christine Olinger, Chemist, and Felecia Fort, Chemist  
Reregistration Branch 1  
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THRU: David Hrdy and Christina Swartz  
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and

Whang Phang, Ph.D., Branch Senior Scientist  
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TO: William J. Hazel, Ph.D., Chemist  
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and

Joseph Nevola/Robert McNally  
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**BACKGROUND/ACTION REQUESTED**

HED has been asked to develop anticipated residue estimates and conduct a dietary risk analysis for the insecticide mevinphos in association with the preliminary human health risk assessment for the RED. Due to concerns over agricultural worker exposure and safety, U.S. registrations for products containing mevinphos were voluntarily canceled by AMVAC Chemical Corporation

effective 7/1/94 (59 *FR* 38973, 8/1/94). The Agency subsequently proposed revoking all mevinphos tolerances (60 *FR* 300393, 8/2/95). However, in a 10/31/95 response to this proposal, AMVAC requested that the Agency not revoke tolerances for mevinphos residues in/on selected fruits and vegetables as AMVAC was supporting the continued use of mevinphos in Mexico on commodities which are imported into the U.S. The uses being supported in Mexico include applications to the following crops: broccoli, cabbage, celery, cucumbers, grapes, lettuce (head and leaf), melons, peppers, peas (succulent, pods), spinach, squash (summer), strawberries, and tomatoes.

## **CONCLUSIONS/SUMMARY**

The refined (Tier 3) acute probabilistic dietary exposure and risk estimates are significantly below HED's level of concern for the general US population and all population subgroups. The most highly exposed population subgroup is children between ages 1 and 6; estimated exposure at the 99.9th percentile corresponds to approximately 17% of the acute Population Adjusted Dose (aPAD).

Chronic (noncancer) dietary exposure and risk are significantly below HED's level of concern, with less than 2% of the chronic Population Adjusted Dose (cPAD) consumed for all population subgroups in all assessments. The most highly exposed population subgroup was children 1-6 years old, with 1.7 %cPAD consumed.

Both the chronic (noncancer) and acute assessments primarily use monitoring data as the basis of the exposure assessment. The assessments could be further refined if grape and tomato processing studies are submitted.

## **DETAILED CONSIDERATIONS**

### **Toxicology Information**

The doses and endpoints for dietary risk assessment selected by the HED Hazard Identification Assessment Review Committee (HIARC) were discussed in detail in the V. Dobozy memo dated 8/4/99. A summary of this information is presented in Table 1.

The HED FQPA Safety Factor Committee determined that for acute dietary risk analyses, an FQPA factor of 3x is appropriate for infants, children and females 13+; a factor of 1 is appropriate for other groups. For chronic dietary risk, the FQPA safety factor is retained at 10x for all population groups (B. Tarplee, 9/28/99).

**Table 1. Summary of Endpoints and Doses for Mevinphos**

EXPOSURE SCENARIO	Subgroup	DOSE (mg/kg/day)	aRfd aPAD	ENDPOINT	STUDY
Acute Dietary	Infants, Children and Females 13+	NOAEL= 0.1 UF = 100 FQPA SF = 3	aRfd = not proposed aPAD = 0.0003	increased incidence of clinical signs, changes in the majority of the FOB parameters and decreased plasma and brain cholinesterase in males and females.	Acute Neurotoxicity Study in Rats (MRID 42985401)
	General Population and all other subgroups except Children and Females 13+	NOAEL= 0.1 UF = 100 FQPA SF =1	aRfd = 0.001 mg/kg/day aPAD= 0.001 mg/kg/day		
Chronic Dietary	all population subgroups	NOAEL = 0.025 UF = 100 FQPA SF = 10	cRfd = 0.00025 mg/kg/day cPAD = 0.000025 mg/kg/day	decreased plasma and brain cholinesterase activity in males and females	Combined Chronic Toxicity/ Carcinogenicity Study in Rats (MRID 43088601)

### Usage Information

BEAD provided information (in a memo dated 8/99) on the percent of crop imported and percent of imported crop treated (%CT) which is included as Attachment 1. This information reflects a best estimate of % imported and %CT; therefore, weighted average and estimated maximum numbers were not generated.

In acute analyses the adjustment for %CT is incorporated in the residue distribution files (RDFs) via addition of zero residue values corresponding to the % crop not treated. For the chronic analyses, the %CT is incorporated into the average residue value. Adjustment factor #2 was therefore not used.

### Residue Data

Tolerances are established for residues of mevinphos (methyl-3-[(dimethoxyphosphinyl)oxy]butenoate, alpha and beta isomers, in/on numerous raw agricultural commodities, including livestock feed items [40 CFR §180.157]. Tolerances for mevinphos range from 0.2 ppm in/on citrus, cucumber, and tomatoes to 4.0 ppm in dehydrated parsley. No tolerances have been established for mevinphos residues in livestock commodities. An adequate GC/FPD (phosphorus mode) method is available for data collection and has been recommended for tolerance enforcement (Mevinphos Registration Standard, 11/87).

The residues of concern for mevinphos include the alpha- and beta-isomers of mevinphos. Field trial and monitoring data are available for both isomers. Field trial data are currently under review

(W. Hazel, DP Barcodes D196769 and D248311) and were used only for head lettuce and cabbage. A detailed description of the residue data used may be found in Attachment 2.

### *Monitoring Data*

Monitoring data for mevinphos have been generated in numerous imported commodities through the USDA Pesticide Data Program (PDP) and the FDA Surveillance Monitoring Program. Although PDP and FDA monitor both domestic and imported pesticide residues in food, only import data were used for this assessment. PDP data were used for grapes and tomatoes, and FDA data were used for broccoli, cauliflower, celery, cucumbers, leaf lettuce, melons, peas, pepper, squash, spinach, and strawberries. Although some PDP data are available for spinach and broccoli, there were insufficient import samples analyzed, or the PDP data were generated prior to enactment of NAFTA.

The PDP data are generally preferred over FDA data for use in dietary exposure and risk analyses. The USDA PDP was specifically designed for risk assessment; analysts prepare samples in a manner similar to typical consumer practices, such as washing, coring/pitting, and/or peeling. The PDP samples are 5 lb composites collected at large-scale distribution centers, just prior to sale in grocery stores, and are more likely to reflect “dinner plate” residues. The FDA samples are 20 lb composites collected for tolerance enforcement purposes, and are not washed or peeled prior to analysis; in addition, FDA samples are collected in the channels of commerce, and often represent “farm gate” residues.

The monitoring data indicate that residues in fruits and vegetables are significantly lower than the established tolerances. A more detailed description of the monitoring data and the approach used to determine inputs for the acute analysis and anticipated residues for the chronic analyses is included in Attachment 2.

### *Processing Factors*

Processing studies are not available for mevinphos and remain a data gap. Therefore, the DEEM default concentration factors were used in the analysis.

### *Residue Inputs for the DEEM<sup>TM</sup> Analyses*

The detailed residue inputs to the acute and chronic dietary exposure analyses are shown in Table 2.

### Acute Dietary Exposure

For the probabilistic acute dietary exposure analysis, the monitoring data were used to generate residue distribution files (RDFs). Some of the commodities of concern are considered to be non-blended according to HED SOP 99-6. Monitoring data are not generally used directly for non-blended commodities, since 5- to 20-lb. composites may underestimate residues in single units (i.e., an apple or pear). However, most of the monitoring data indicate residues are low, and

residues were detected in very few samples so single unit residue values were not statistically generated (decomposed) from composite samples. Therefore, the monitoring data were used directly in the RDF for all non-blended and partially blended commodities. There are no commodities or food forms considered blended in this assessment.

The monitoring data for imported commodities were used to represent the distribution of residue values expected in imports only. Residues in domestically-grown commodities were assumed to be zero. Because the relative proportion of domestic to imported commodities in the monitoring data did not reflect the relative proportion actually imported, HED could not use the entire distribution of domestic and import samples. The method for using monitoring data to generate the RDFs for broccoli is described in detail in Attachment 2; the same approach was used with monitoring data for other commodities, with some exceptions noted. The individual residue values included in the RDFs are shown in Attachment 3.

### Chronic Dietary Exposure

Chronic anticipated residues (ARs) were calculated from USDA PDP and FDA Surveillance monitoring data, with the exception of head lettuce and cabbage, for which field trial data were used. Details of the calculations are provided in Attachment 2.

### **Consumption Data**

HED conducts dietary risk assessments using the Dietary Exposure Evaluation Model (DEEM™), which incorporates consumption data generated in USDA's Continuing Surveys of Food Intakes by Individuals (CSFII), 1989-1992. For acute dietary risk assessments, the entire distribution of consumption events for individuals is multiplied by a distribution of residues (probabilistic analysis, referred to as "Monte Carlo," risk at 99.9th percentile of exposure reported) to obtain a distribution of exposures in mg/kg/day. For chronic dietary risk assessments, the three-day average of consumption for each sub-population is combined with average residues in commodities to determine average exposure in mg/kg/day.

### **Results**

Acute and chronic dietary exposure and risk estimates were based primarily on monitoring data; relatively few anticipated residue estimates relied on field trial data. These analyses are considered to be highly refined. Data which could further refine the risk estimates are grape and tomato processing data.

Acute dietary exposure and risk estimates for mevinphos are below HED's level of concern. The most highly exposed population subgroup is children between ages 1 and 6; estimated exposure at the 99.9th percentile corresponds to approximately 17% of the acute Population Adjusted Dose (aPAD). Results are presented in Table 3.

Chronic dietary exposure and risk were significantly below HED's level of concern, with <2% cPAD consumed for all population subgroups. Results of the assessment are presented in Table 3.

Attachments:

- |               |  |
|---------------|--|
| Attachment 1. | BEAD Percent Imported/Percent Crop Treated Tables for Mevinphos        |
| Attachment 2. | Mevinphos Residue and Monitoring Data–Detailed Discussion.             |
| Attachment 3. | Mevinphos Acute Dietary Exposure Analysis: Residue Distribution Files. |
| Attachment 4. | Mevinphos Acute Dietary Exposure Analysis                              |
| Attachment 5. | Mevinphos Chronic Dietary Exposure Analysis                            |

Dietary Exposure SAC Review:10/14/99

HED ChemSAC review of the acute and chronic ARs:9 /29/99

cc: COlinger, FFort, LaShonia Richardson (HED/CEB1); List A Rereg. File

7509C:COlinger:RRB1:CM2:Rm 722J:703 305 5406:10/04/99



Table 2. Summary of Anticipated Residues for Mevinphos in/on Imported Fruits and Vegetables

Crop	Food Form	Classification <sup>2</sup>	AR Data Source <sup>1</sup>	Percent Imported <sup>3</sup>	Percent Crop Treated <sup>3</sup>	Residue Distribution for Acute Anticipated Residue <sup>5</sup>	Chronic Anticipated Residue, ppm <sup>4</sup>
Broccoli	Uncooked, Cooked, Baked, Boiled, Fried	NB	FDA	3.09	47.6	0 (3476), 0.003 (44), 0.005 (6), 0.02, 0.07	7.10e-05
	Canned: Cooked, Frozen: Cooked, Frozen: Boiled	PB					
Cabbage	Uncooked, Cooked, Baked, Boiled, Fried	NB	FT	1.05	47.6	0 (198), 0.01 (2)	1.00e-04
	Canned:NFS <sup>8</sup> , Canned: Cooked, Cured: NFS	PB					
Cauliflower <sup>7</sup>	Uncooked, Cooked, Boiled, Fried	NB	FDA	37	47.6 <sup>7</sup>	0 (243), 0.003 (44), 0.005 (6), 0.02, 0.07	8.50e-04
	Frozen: Cooked	PB					
Celery	Uncooked, Cooked, Baked, Boiled, Fried	NB	FDA	<1	NA <sup>6</sup>	0 (9603), 0.003 (96), 0.04	3.40e-05
	Canned: NFS, Canned: Cooked, Canned: Boiled, Frozen: Cooked	PB					
Celery Juice	Canned: NFS	PB	FDA	<1	NA <sup>6</sup>	0 (9603), 0.003 (96), 0.04	3.40e-05
Cucumbers	Uncooked	NB	FDA	37.1	14.3	0 (733), 0.003 (40), 0.005	1.60e-04
	Canned: Boiled Canned: Cured	PB					
Grapes	Uncooked, Cooked: NFS, Canned: NFS, Frozen: NFS	PB	PDP	25	1	0 (3635), 0.004 (1), 0.044, 0.01, 0.006, 0.004, 0.003, 0.24, 0.022, 0.007	9.00e-05
Grape juice	Uncooked, Cooked: NFS, Boiled, Canned: NFS, Canned: Boiled, Frozen: NFS	PB	PDP	25	1	0 (3635), 0.004 (1), 0.044, 0.01, 0.006, 0.004, 0.003, 0.24, 0.022, 0.007  Processing factor = 1.2 (DD) <sup>8</sup>	9.00e-05
Grape juice-concentrate	Cooked, Baked, Boiled, Canned: NFS, Frozen: NFS	PB	PDP	25	1	0 (3635), 0.004 (1), 0.044, 0.01, 0.006, 0.004, 0.003, 0.24, 0.022, 0.007  Processing factor = 3.6 (DD) <sup>8</sup>	9.00e-05
Grape-leaves	Boiled	PB	PDP	25	1	0 (3635), 0.004 (1), 0.044, 0.01, 0.006, 0.004, 0.003, 0.24, 0.022, 0.007	9.00e-05

Crop	Food Form	Classification <sup>2</sup>	AR Data Source <sup>1</sup>	Percent Imported <sup>3</sup>	Percent Crop Treated <sup>3</sup>	Residue Distribution for Acute Anticipated Residue <sup>5</sup>	Chronic Anticipated Residue, ppm <sup>4</sup>
Grapes-raisins	Uncooked, Cooked: NFS, Baked, Boiled, Dried, Frozen: Cooked	PB	PDP	25	1	0 (3635), 0.004 (1), 0.044, 0.01, 0.006, 0.004, 0.003, 0.24, 0.022, 0.007  Processing factor = 4.3 (DD) <sup>8</sup>	9.00e-05
Grapes-wine and sherry	Alcohol/Fermented/ Distilled	PB	PDP	25	1	0 (3635), 0.004 (1), 0.044, 0.01, 0.006, 0.004, 0.003, 0.24, 0.022, 0.007	9.00e-05
Lettuce, Head	Uncooked	NB	FDA	<1	100	0 (99), 0.01 (1)	1.00e-04
Lettuce, Leaf	Uncooked	PB	FDA	<1	100	0 (12870), 0.003 (118), 0.09, 0.08, 0.02, 0.1, 0.49, 0.57, 0.005 (2), 0.03, 0.05, 0.02, 0.08	1.50e-04
Lettuce-Unspecified	Canned: NFS	PB	FDA	<1	100	0 (12870), 0.003 (118), 0.09, 0.08, 0.02, 0.1, 0.49, 0.57, 0.005 (2), 0.03, 0.05, 0.02, 0.08	1.50e-04
Melons Crenshaws Casaba Cantaloupe Pulp Honeydew Persian Watermelon	Uncooked	NB	FDA	10.1	22.4	0 (6048), 0.003 (140)	6.80e-05
Melons- juice Cantaloupe juice Watermelon juice	N/A	PB	FDA	10.1	22.4	0 (6048), 0.003 (140)	6.80e-05
Peas, succulent	Cooked: NFS, Boiled, Canned: Cooked, Frozen: Cooked	PB	FDA	1	NA <sup>6</sup>	0 (29007), 0.003 (292), 0.06 (1)	3.20e-05
Peas(garden)-green	Uncooked, Cooked: NFS, Baked, Boiled, Fried, Canned: NFS, Canned: Cooked, Canned: Boiled, Frozen: Cooked, Frozen: Fried	PB	FDA	1	NA <sup>6</sup>	0 (29007), 0.003 (292), 0.06 (1)	3.20e-05
Peppers, Bell (sweet)	Uncooked, Cooked: nfs, Baked, Boiled	NB	FDA	24.3	NA <sup>6</sup>	0 (3332), 0.003 (49), 0.005 (2)	4.60e-05

Crop	Food Form	Classification <sup>2</sup>	AR Data Source <sup>1</sup>	Percent Imported <sup>3</sup>	Percent Crop Treated <sup>3</sup>	Residue Distribution for Acute Anticipated Residue <sup>5</sup>	Chronic Anticipated Residue, ppm <sup>4</sup>
	Canned: NFS, Canned: Cooked, Canned: Boiled, Frozen: Cooked, Cured: NFS	PB					
Peppers, Non-Bell	Uncooked, Cooked: nfs, Baked, Boiled, Fried,	NB	FDA	24.3	NA <sup>6</sup>	0 (2379), 0.003 (36)	4.50e-05
	Canned: NFS, Canned: Cooked, Canned: Boiled, Canned, Baked, Frozen: Cooked, Cured: NFS	PB					
Spinach	Uncooked, Cooked: nfs, Boiled, Canned: NFS, Canned: Cooked, Canned: Boiled, Frozen: Cooked, Frozen: Boiled	PB	FDA	1.54	NA <sup>6</sup>	0 (6266), 0.003 (90), 0.04, 0.09, 0.23, 0.005, 0.31, 0.11, 0.06	1.90e-04
Summer Squash	Cooked: NFS, Baked, Boiled, Fried	NB	FDA	70	14.3	0 (577), 0.003 (64)	3.00e-04
	Canned: Boiled, Frozen: Cooked, Cured: NFS	PB					
Strawberries	Cooked: NFS, Baked, Boiled, Canned: NFS, Canned: Boiled, Frozen: NFS	PB	FDA	3.64	NA <sup>6</sup>	0 (5533), 0.003 (206), 0.005 (2), 0.29	1.60e-04
Strawberries-juice	Uncooked, Cooked: NFS, Baked, Boiled, canned: NFS	PB	FDA	3.64	NA <sup>6</sup>	0 (5533), 0.003 (206), 0.005 (2), 0.29	1.60e-04
Tomatoes-whole	Uncooked, Cooked: NFS, Baked, Boiled, Fried	NB	PDP	29	2.3	0 (880), 0.003(6)	3.00e-05
	Canned: NFS, Canned: Cooked, Canned, Baked, Canned: Boiled, Frozen: Cooked	PB					
Tomatoes-puree	Cooked: NFS, Boiled, Canned: NFS, Canned: Cooked, Canned, Baked, Canned: Boiled, Frozen: Cooked	PB	PDP	29	2.3	0 (880), 0.003(6) Processing factor = 3.3 (DD) <sup>8</sup>	3.00e-05
Tomatoes-paste	Boiled, Canned: NFS, Canned: Cooked, Canned, Baked, Canned: Boiled, Frozen: Cooked	PB	PDP	29	2.3	0 (880), 0.003(6) Processing factor = 5.4 (DD) <sup>8</sup>	3.00e-05
Tomatoes-juice	Canned: NFS, Canned: Cooked, Canned: Boiled, Frozen: Cooked	PB	PDP	29	2.3	0 (880), 0.003(6) Processing factor = 1.5 (DD) <sup>8</sup>	3.00e-05
Tomatoes - dried	Cooked: nfs, Fried	PB	PDP	29	2.3	0 (880), 0.003(6) Processing factor = 14.3 (DD) <sup>8</sup>	3.00e-05

Crop	Food Form	Classification <sup>2</sup>	AR Data Source <sup>1</sup>	Percent Imported <sup>3</sup>	Percent Crop Treated <sup>3</sup>	Residue Distribution for Acute Anticipated Residue <sup>5</sup>	Chronic Anticipated Residue, ppm <sup>4</sup>
Tomatoes-catsup	Canned: Boiled	PB	PDP	29	2.3	0 (880), 0.003(6)  Processing factor = 2.5 (DD) <sup>8</sup>	3.00e-05

<sup>1</sup> FDA = FDA Monitoring data; PDP = USDA Pesticide Data Program; FT = field trial data.

<sup>2</sup> Classification from HED SOP 99-6 (8/20/99). NB = Non-blended; PB = partially blended; B = blended.

<sup>3</sup> Percent imported (percent of the U.S. supply that is imported) and percent crop treated (percent of the imported crop that is treated) information was provided by BEAD (D. Widawsky 8/10/99, 9/27/99).

<sup>4</sup> Chronic anticipated residue incorporates percent crop treated.

<sup>5</sup> Values are reported as ppm. Frequency of values are in parentheses.

<sup>6</sup> NA - data on specific commodity were not available for this review. Therefore a value of 100% was assumed.

<sup>7</sup> Values for cauliflower were translated from broccoli.

<sup>8</sup> NFS = Not Further Specified; DD = Deem Default Adjustment Factor

Table 3. Summary of Mevinphos Acute and Chronic Dietary Exposure and Risk Estimates.<sup>1</sup>

Population Subgroup	Acute Assessment 99.9th %-ile of Exposure			Chronic Assessment		
	Exposure (mg/kg/day)	aPAD	%aPAD	Exposure (mg/kg/day)	cPAD	%cPAD
General US Population	2.40e-05	0.001	2	<1.0e-06	0.000025	0.8
All infants (<1 year)	1.50e-05	0.0003	5	<1.0e-06	0.000025	0.7
Nursing infants (<1 year)	4.00e-05	0.0003	1	<1.0e-06	0.000025	0.5
Non-nursing infants (<1yr)	2.00e-05	0.0003	6	<1.0e-06	0.000025	0.8
Children 1-6 years	5.50e-05	0.0003	17	<1.0e-06	0.000025	1.7
Children 7-12 years	2.90e-05	0.0003	9	<1.0e-06	0.000025	1.0
Females 13-19 (not preg./nursing)	2.10e-05	0.0003	6	<1.0e-06	0.000025	0.6
Females 20+ years	2.10e-05	0.0003	6	<1.0e-06	0.000025	0.8
Females 13-50 years	2.00e-05	0.0003	6	<1.0e-06	0.000025	0.7
Males 13-19 years	2.30e-05	0.001	2	<1.0e-06	0.000025	0.6
Males 20+ years	1.80e-05	0.001	2	<1.0e-06	0.000025	0.7

<sup>1</sup> The acute Population Adjusted Dose (aPAD) is 0.0003 for infants, children, and females 13+ years; 0.001 mg/kg/day for U.S. Population and all other subgroups; the chronic PAD (cPAD) is 0.000025 mg/kg/day. Refer to Attachments 4-13 for details.

## Attachment 1: Mevinphos Usage Information

Mexican imports of selected fresh fruits and vegetables and their % of total available commodity in the U.S. (D. Widawsky 8/10/99)

Crop	U.S. Production (metric tons) <sup>b</sup>			Mexican Imports to U.S. (metric tons) <sup>c</sup>			Crop Available (metric tons)	Mexican imports as a % of available commodity in U.S.
	1995	1996	Average	1995	1996	Average		
Broccoli (fresh)	627918	643567	635742.5	17533	23054	20293.5	656036	3.09
Cabbage	1043007	1112726	1077866.5	NA <sup>d</sup>	NA	NA	1077866.5	NA
Celery	854128	855534	854831	9165	4432	6798.5	861629.5	0.79
Cucumbers (fresh)	457183	446569	451876	238988	293753	266370.5	718246.5	37.09
Grapes (fresh)	641390	537.062	320963.531	80492	60623	70557.5	391521.031	18.02
Lettuce (head)	28281506	2987.046	14142246.5	18498	10025	14261.5	16448211	0.09
Lettuce (leaf)	791713	807634	799673.5					
Melons	2905488	3220150	3062819	286252	399500	342876	3405695	10.07
Peas, succulent	NA	NA	NA	NA	NA	NA	NA	NA
Peppers (fresh)	654590	768988	711789	203970	246406	225188	936977	24.03
Spinach (fresh)	80559	75025	77792	1244	1185	1214.5	79006.5	1.54
Summer Squash	NA	NA	NA	113219	135439	124329	124329	NA
Strawberries (fresh)	727212	738234	732723	25894	29434	27664	760387	3.64
Tomatoes (fresh)	1566507	1567823	1567165	593064	685677	639370.5	2206535.5	28.98

<sup>a</sup> Only data 1995 and 1996 were used to calculate average production or imports because imports from Mexico significantly increased following enactment of NAFTA in 1994.

<sup>b</sup> Data on U.S. production were obtained from *Agricultural Statistics, 1997*; As data on only fresh imported products were available for Mexico, only data on production of fresh commodities in U.S. were used for comparison.

<sup>c</sup> Data on amounts imported fresh fruits and vegetables from Mexico was obtained from the Foreign Agricultural Service, USDA ([www.fas.usda.gov/itp/policy/nafta](http://www.fas.usda.gov/itp/policy/nafta)).

<sup>d</sup> NA - data on specific commodity were not available for this review.

## Attachment 1: Mevinphos Usage Information

Mevinphos Table: Mexican imports of supplementary crops, % of total available commodity in the U.S., and % CT with Mevinphos (D. Widawsky, 9/27/99)

Crop	U.S. Production (metric tons) <sup>b</sup>			Mexican Imports to U.S. (metric tons) <sup>c</sup>			Crop Available (metric tons)	Mexican imports as a % of available commodity in U.S.	% Crop Treated
	1995	1996	Average	1995	1996	Average			
Cabbage	1043007	1112726	1077866			11500	1089366	1.05%	47.6% <sup>e</sup>
Peas, Green			1070000			10000 <sup>e</sup>	1080000	0.925% <sup>e</sup>	NA
Summer Squash			52000	113219	135439	124329	176329	70%	14.3% <sup>f</sup>
Cauliflower			295000			172000	467000	36.8%	47.6% <sup>e</sup>
Grapes (and Chile)			854000			280000 (from Chile)	1134000	24.6%	0.69%

<sup>a</sup> Only data 1995 and 1996 were used to calculate average production or imports because imports from Mexico significantly increased following enactment of NAFTA in 1994.

<sup>b</sup> Data on U.S. production were obtained from *Agricultural Statistics, 1997*; As data on only fresh imported products were available for Mexico, only data on production of fresh commodities in U.S. were used for comparison.

<sup>c</sup> Data on amounts imported fresh fruits and vegetables from Mexico was obtained from the USDA FATUS (Foreign Agricultural Trade of the U.S.) '97

<sup>d</sup> NA - data on specific commodity were not available for this review.

<sup>e</sup> Only one value for cole crops was available.

<sup>f</sup> Only one value for cucurbit crops was available.

<sup>g</sup> Imports aggregated green peas and chickpeas. Imports as % of crop available in U.S. -- although small -- is still a high estimate because U.S. production of chickpeas was not included.

## **Introduction**

In general, FDA monitoring data from 1995-1998 were used to develop anticipated residues for imported commodities. If sufficient monitoring data of imported commodities were available from the USDA Pesticide Data Program (PDP), then PDP data were used instead. FDA data prior to 1995 were not used, as imports from Mexico increased after enactment of NAFTA in 1994.

With the exception of leaf lettuce and spinach, residues of mevinphos are generally non-detectable or very low in/on most commodities. This is consistent with the field trial residue data currently under review. Higher residues may be present on the lettuce and spinach because of increased surface area for retaining the residues, or greater usage on these commodities.

The limit of quantitation (LOQ) reported by the FDA for mevinphos residues in/on most commodities is 0.01 ppm. A value of 0.005 ppm ( $\frac{1}{2}$  the LOQ) was used for commodities bearing trace residues. The limit of detection is assumed to be  $\frac{1}{3}$  the LOQ, or 0.003 ppm, and this value was used to represent all commodities assumed to be treated but bearing non-detectable residues (see ChemSAC decision re: LOD vs LOQ in dietary exposure assessments, 5/19/98).

The limit of detection (LOD) reported by the USDA PDP is variable, depending upon the commodity and/or laboratory. A weighted average of  $\frac{1}{2}$  the LOD was used for commodities assumed to be treated with mevinphos, but residues were non-detectable.

Designation of commodities as non-blended, partially-blended, and blended is from HED SOP 99-6 (8/20/99). Percent imported and percent crop treated information was provided by BEAD and may be found in Attachment 1 (D. Widawsky, 8/10/99 and 9/27/99).

## **Broccoli and Cauliflower**

FDA monitoring data for imported broccoli are available and were translated to cauliflower (see HED SOP 99.3 - Translation of Monitoring Data, 3/26/99). A summary of the monitoring data is presented in Table 1. Fresh broccoli is considered to be non-blended, and therefore would typically require a statistical 'decomposing' from the composite monitoring sample to a representative single serving sample. Since residues were detected in so few samples and at relatively low levels, the monitoring data must be used directly (as per HED SOP 99-6).

PDP analyzed 15 imported broccoli samples in 1994. Residues were detected in only one sample at a level of 0.033 ppm.

The distribution of residues in the imported monitoring samples were used to represent the residue distribution in imports; residues in domestic commodities were assumed to be zero. To obtain the total number of samples to represent the entire distribution of domestic and imported, the total number of monitoring samples was divided by the percent imported factor. The total number of "treated" samples was determined by multiplying the total number of samples by the percent imported and percent crop treated factors. Percent crop treated was assumed to be 100 if BEAD was unable to provide specific values. Finally the number of treated non detects was calculated by



## Attachment 2: Mevinphos Residue and Monitoring Data–Detailed Discussion.

subtracting the total number of detects from the total number of treated samples. The total number of samples with zero residues was calculated by subtracting the total number of treated from the total number of samples. Example calculations for broccoli are included below; this method was used for all other commodities which employed monitoring data as the basis for the imported commodity distribution.

For broccoli, the total number of imported monitoring samples is 109, the percent imported is 3.09, the percent of imported commodities treated is 48, and the average residues of the samples bearing detectable residues is 0.015. The LOD for monitoring data is 0.003 ppm.

Total No. of Samples:  $109/0.0309 = 3528$

Total No. of Treated Samples:  $(3528 \text{ samples}) \times (0.0309) \times (0.48) = 52$

Total No. of Untreated Samples (Zero Residues):  $3528 - 52 = 3476$

Total No. of Detects = 8

Total No. of Treated Samples bearing non-detectable residues =  $52 - 8 = 44$

Average Residues :

$$\frac{(8 \text{ samples} \times 0.015 \text{ ppm}) + (44 \times 0.003 \text{ ppm}) + (3476 \times 0 \text{ ppm})}{3528 \text{ samples}} = 0.000071 \text{ ppm}$$

The average residue value for cabbage is 0.0014 ppm; the differences between cabbage and cauliflower are due to different percent imported.

Table 1. Summary of FDA Monitoring Data for Residues of Mevinphos in/on Broccoli

Year	No. of Samples	No. of Detects	Range of Detects	Values of Detects
1995	28	6	0.005-0.07	0.005 (5), 0.07
1996	18	2	0.005-0.02	0.005, 0.02
1997	26	0	--	--
1998	37	0	--	--
Total	109	8	0.005-0.07	0.005 (6), 0.02, 0.07

### Celery

A summary of the monitoring data is presented in Table 2. Fresh celery is a non-blended commodity, and therefore would typically require a statistical 'decomposing' from the composite monitoring sample to a representative single serving sample. Since residues were detected in only one sample and at a relatively low level, the monitoring data must be used directly. The average residue value to be used for the chronic analysis is 0.000034 ppm.

Table 2. Summary of FDA Monitoring Data for Residues of Mevinphos in/on Celery

## Attachment 2: Mevinphos Residue and Monitoring Data–Detailed Discussion.

Year	No. of Samples	No. of Detects	Values of Detects
1995	25	0	--
1996	33	0	--
1997	22	1	0.04
1998	17	0	--
Total	97	1	0.04

### Cucumbers

A summary of the FDA monitoring data for cucumbers is presented in Table 3. Fresh cucumbers are a non-blended commodity, and therefore would typically require a statistical 'decomposing' from the composite monitoring sample to a representative single serving sample. Since trace residues were detected in only one sample, the monitoring data were used directly. The average residue value used for the chronic analysis is 0.00016 ppm.

Table 3. Summary of FDA Monitoring Data for Residues of Mevinphos in/on Cucumbers

Year	No. of Samples	No. of Detects	Range of Detects	Values of Detects
1995	79	1	0.005	0.005
1996	62	0	--	--
1997	84	0	--	--
1998	62	0	--	--
Total	287	1	0.005	0.005

### Grapes

Sufficient PDP data are available from the period of 1994-1996 and are summarized in Table 4 below. Grapes are a partially blended commodity, so the monitoring data were used directly. The weighted average of the limits of detection is 0.008 ppm; one-half this value was used to represent treated samples bearing non-detectable residues. The average residue value for the chronic analysis is 0.00009 ppm.

## Attachment 2: Mevinphos Residue and Monitoring Data–Detailed Discussion.

Table 4. Summary of PDP Monitoring Data for Residues of Mevinphos in/on Grapes

Year	No. of Samples	No. of Detects	Range of Detects	Values of Detects
1994	288	3	0.007- 0.24	0.24, 0.022, 0.007
1995	310	5	0.003-0.044	0.044, 0.01, 0.006, 0.004, 0.003
1996	313	0	--	--
Total	911	8	0.007- 0.24	0.044, 0.01, 0.006, 0.004, 0.003, 0.24, 0.022, 0.007

### Head Lettuce and Cabbage

Insufficient monitoring data on imported lettuce and cabbage are available for these commodities. Residues were not detected in any of 28 imported cabbage samples analyzed during the period 1995-98, and one sample out of 74 for head lettuce showed detectable trace residues. Field trial data were used for the dietary exposure analysis, since monitoring data were too limited to be used quantitatively..

The available field trial data for head lettuce and cabbage are presented in Tables 5 and 6, respectively. Refer to the W. Hazel review of Barcode D196769 for a detailed explanation of the analytical methodology and supporting storage stability information. No Mexican field trial data are available for head lettuce, and only one trial has been conducted in Mexico for cabbage. Field trial data for other commodities generally show lower residues from Mexican than those conducted in the US. Since so few representative field trials are available, HED will use a value of 0.01 ppm as a reasonable upperbound value to represent the residues in all head lettuce and cabbage treated with mevinphos. This value is probably an overestimate, but is more reasonable than using the existing tolerance in the risk assessment. The average residue value to be used for the chronic analysis is 0.0001 ppm for both commodities.

Table 5. Residues of mevinphos in/on trimmed head lettuce harvested following a single broadcast foliar application of mevinphos (EC and SC/L) at ~0.4 ai/A

Trial location	Application Data		PTI <sup>3</sup> (days)	Mevinphos Residues (ppm) <sup>4</sup>		
	Formulation <sup>1</sup>	Rate (lb ai/A) <sup>2</sup>		α-isomer	β-isomer	Total
Watsonville, CA	3.5 lb/gal SC/L	0.44	3	0.0035	0.0015	0.005
	3.6 lb/gal EC			0.0035	0.003	0.0065
	2.9 lb/gal SC/L	0.36	3	0.0035	0.0015	0.005
	2.9 lb/gal EC			0.0035	0.0015	0.005
Porterville, CA	3.5 lb/gal SC/L	0.44	3	0.0035	0.008	0.0115
	3.6 lb/gal EC			0.0035	0.003	0.0065
	2.9 lb/gal SC/L	0.36	3	0.0035	0.0015	0.005
	2.9 lb/gal EC			0.007	0.012	0.019

<sup>1</sup> Four different formulations were used at each site; Phosdrin IPA4 (3.5 lb/gal SC/L), Phosdrin 4 EC (3.6 lb/gal EC), Hi-Alpha Phosdrin IPA (2.9 lb/gal SC/L), and Hi Alpha Phosdrin EC (2.9 lb/gal EC).

<sup>2</sup> Rates is equivalent to 1 pint formulated product per acre. All of these formulations are not registered in Mexico.

<sup>3</sup> PTI = post-treatment interval.

<sup>4</sup> Values are averages of duplicate samples. A value of ½ the LOD was used for non-detectable residues, and ½ the LOQ for samples with detectable residues below the LOQ.

## Attachment 2: Mevinphos Residue and Monitoring Data–Detailed Discussion.

Table 6. Residues of Mevinphos In/on Cabbage Harvested 3 Days Following a Single Broadcast Foliar Application of Mevinphos (Sc/l) at 0.39 Lb Ai/a (1x) from a Single Test in Mexico.

Trial location	Application Data		PTI <sup>1</sup> (days)	Mevinphos Residues (ppm) <sup>2</sup>		
	Formulation	Rate (lb ai/A)		$\alpha$ -isomer	$\beta$ -isomer	Total
Guanajuato, Mexico	10.3 lb/gal SC/L	0.39	3	<0.010, <0.010	<0.010, <0.010	<0.020, <0.020
				<0.010, <0.010	<0.010, <0.010	<0.020, <0.020
				<0.010, <0.010	<0.010, <0.010	<0.020, <0.020

<sup>1</sup> PTI = post-treatment interval.

<sup>2</sup> Each value represents the analysis of a single composite sample.

### Leaf Lettuce

A summary of the FDA monitoring data is presented in Table 7 below. Leaf lettuce is a partially blended commodity, so the monitoring data were used directly without decomposing. All samples bearing detectable residues were from Mexico. The average residue value used for the chronic analysis is 0.00015 ppm.

Table 7. Summary of FDA Monitoring Data for Residues of Mevinphos in/on Leaf Lettuce

Year	No. of Samples	No. of Detects	Range of Detects, ppm	Values of Detects, ppm
1995	40	9	0.005-0.57	0.09, 0.08, 0.02, 0.1, 0.49, 0.57, 0.005 (2), 0.03
1996	44	2	0.02-0.05	0.02, 0.05
1997	26	0	--	--
1998	20	1	0.08	0.08
Total	130	12	0.005-0.57	0.09, 0.08, 0.02, 0.1, 0.49, 0.57, 0.005 (2), 0.03, 0.05, 0.02, 0.08

### Melons

Residues of mevinphos were not detected in any of 625 imported melon samples analyzed by FDA during the period 1995-1998. The monitoring data are consistent with the field trials where residues were very low as well. The average residue value used for the chronic analysis is 0.000068 ppm.

### Peas

A summary of the FDA monitoring data for residues of mevinphos in/on peas is presented in Table 8. The sample bearing detectable residues was from Mexico. The average residue value used for the chronic analysis is 0.000032 ppm.

## Attachment 2: Mevinphos Residue and Monitoring Data–Detailed Discussion.

Table 8. Summary of FDA Monitoring Data for Residues of Mevinphos in/on Peas

Year	No. of Samples	No. of Detects	Range of Detects	Values of Detects
1995	73	0	--	--
1996	99	1	0.06	--
1997	66	0	--	--
1998	55	0	--	--
Total	293	1	0.06	0.06

### Peppers - Bell and Non-Bell

During the period from 1995-1998, FDA analyzed 822 imported bell pepper samples for residues of mevinphos. Trace level residues were detected in only two samples from Mexico; residues in the remaining samples were non-detectable. The average residue value used for the chronic analysis is 0.000046 ppm.

During this same period, 587 imported non-bell pepper samples were analyzed for residues of mevinphos. No residues were detected in any sample. The average residue value used for the chronic analysis is 0.000045 ppm.

### Spinach

A summary of the FDA monitoring data from non-violative samples is presented in Table 9. A single sample showed residues of 1.54 ppm, which exceeds the tolerance. HED does not generally include results of violative samples in the risk assessment since overtolerance residues result from illegal use and this issue is seen as an enforcement matter. All of the samples bearing detectable residues originated in Mexico. The average residue value used for the chronic analysis is 0.00019 ppm.

Table 9. Summary of FDA Monitoring Data for Residues of Mevinphos in/on Spinach

Year	No. of Non-Violative Samples	No. of Non-Violative Detects	Range of Non-Violative Detects	Values of Detects
1995	22	4	0.005 - 0.23	0.04, 0.09, 0.23, 0.005
1996	27	2	0.11 - 0.31	0.31, 0.11
1997	19	0	--	--
1998	30	1	0.06	0.06
Total	98	7	0.005 - 0.31	0.04, 0.09, 0.23, 0.005, 0.31, 0.11, 0.06

### **Squash (summer)**

Residues of mevinphos were not detected in any of 449 imported squash samples analyzed by FDA during the period 1995-1998. The monitoring data are consistent with the field trials where residues were non-detectable as well. The average residue value used for the chronic analysis is 0.0003 ppm.

### **Strawberries**

A summary of the FDA monitoring data is presented in Table 10. Strawberries are a partially-blended commodity and therefore the monitoring data may be used directly. The average residue value to be used for the chronic analysis is 0.00016 ppm.

Table 10. Summary of FDA Monitoring Data for Residues of Mevinphos in/on Strawberries

Year	No. of Samples	No. of Detects	Range of Detects	Values of Detects
1995	66	3	0.005-0.29	0.005 (2), 0.29
1996	44	0	--	--
1997	34	0	--	--
1998	65	0	--	--
Total	209	3	0.005-0.29	0.005 (2), 0.29

### **Tomatoes**

PDP analyzed 36 and 221 imported tomato samples in 1996 and 1997, respectively. Residues of mevinphos were not detected in any sample, and so the data were used directly without a decompositing. These data are consistent with the FDA monitoring data, which also showed non-detectable residues. The weighted average of the limits of detection to be used in the dietary risk analysis is 0.006 ppm; one-half this value was used to represent the treated samples. The average residue value to be used for the chronic analysis is 0.00003 ppm.

### Attachment 3. Mevinphos Acute Dietary Analysis: Residue Distribution Files

#### **Broccoli**

Broccoli- FDA Monitoring Data 1995-98

TOTALZ=3476

TOTALNZ=8

TOTALLOD=44

LODRES=0.003

0.005

0.07

0.005

0.005

0.005

0.005

0.005

0.02

#### **Cabbage**

Cabbage - Field Trial Data

TOTALZ=198

TOTALNZ=2

0.01

0.01

#### **Cauliflower**

Cauliflower - FDA Monitoring Data 1995-98

TOTALZ=243

TOTALNZ=8

TOTALLOD=44

LODRES=0.003

0.005

0.07

0.005

0.005

0.005

0.005

0.005

0.02

#### **Celery**

Celery FDA Monitoring Data 1995-98

TOTALZ=9603

TOTALNZ=1

TOTALLOD=96

LODRES=0.003

0.04

#### **Cucumber**

Cucumber FDA Monitoring Data 1995-98

TOTALZ=733

TOTALNZ=1

TOTALLOD=40

LODRES=0.003

0.005

#### **Grape**

Grape PDP Monitoring Data 1994-96

TOTALZ=3635

TOTALNZ=8

TOTALLOD=1

LODRES=0.004

0.044

0.01

0.006

0.004

0.003

0.24

0.022

0.007

#### **Lettuce, Head**

Head Lettuce - Field Trial Data

TOTALZ=99

0.01

#### **Lettuce, Leaf**

Leaf Lettuce FDA Monitoring Data 1995-98

TOTALZ=12870

TOTALNZ=12

TOTALLOD=118

LODRES=0.003

0.005

0.09

0.08

0.02

0.1

0.49

0.57

0.005

0.03

0.05

0.02

0.08

#### **Melon**

Melons FDA Monitoring Data 1995-98

### Attachment 3. Mevinphos Acute Dietary Analysis: Residue Distribution Files

TOTALZ=6048  
TOTALFREQ=1

140,0.003

TOTALFREQ=1

64,0.003

#### **Peas, succulent**

Pea FDA Monitoring Data 1995-98

TOTALZ=29007

TOTALNZ=1

TOTALLOD=292

LODRES=0.003

0.06

#### **Strawberry**

Strawberry FDA Monitoring Data 1995-98

TOTALZ=5533

TOTALLOD=206

LODRES=0.003

0.005

0.005

0.29

#### **Peppers, Bell**

Pepper - Bell FDA Monitoring Data 1995-98

TOTALZ=3332

TOTALNZ=2

TOTALLOD=49

LODRES=0.003

0.005

0.005

#### **Tomato**

Tomato PDP Monitoring Data 1996-97

TOTALZ=880

TOTALFREQ=1

6,0.003

#### **Peppers, Non-Bell**

Pepper - Non -Bell FDA Monitoring Data 1995-98

TOTALZ=2379

36,0.003

#### **Spinach**

Spinach FDA Monitoring Data 1995-98

TOTALZ=6266

TOTALNZ=7

TOTALLOD=90

LODRES=0.003

0.04

0.09

0.23

0.005

0.31

0.11

0.06

#### **Squash, summer**

Squash FDA Monitoring Data 1995-98

TOTALZ=577



# Attachment 3. Mevinphos Acute Dietary Analysis: Residue Distribution Files

U.S. Environmental Protection Agency

Ver. 6.78

DEEM Acute analysis for MEVINPHOS

1989-92 data

Residue file name: C:\\$MyFiles\Mevinphos\mevinphos2.R96 Adjust.

#2 NOT used

Analysis Date 10-18-1999

Residue file dated:

10-12-1999/09:45:45/8

Reference dose (aRfD) = 0.000331 mg/kg bw/day

-----  
RDF indices and file names for Monte Carlo Analysis

- 1 brcl.rdf
- 2 cabl.rdf
- 3 caul.rdf
- 4 cell.rdf
- 5 cukl.rdf
- 6 grpl.rdf
- 7 letl.rdf
- 8 lethl.rdf
- 9 mell.rdf
- 10 peal.rdf
- 11 pepnl.rdf
- 12 pepbl.rdf
- 13 sqsl.rdf
- 14 stwl.rdf
- 15 toml.rdf
- 16 spnl.rdf

Food Crop			RESIDUE	RDF	
Adj.FactorsCode			(ppm)	#	#1
Grp	Food Name				
#2					
-----					
13 O	Grapes		0.000090	6	1.000
1.000					
14 O	Grapes-raisins		0.000090	6	4.300
1.000					
15 O	Grapes-juice		0.000090	6	1.200
1.000					
17 O	Strawberries		0.000160	14	1.000
1.000					
141 9A	Melons-cantaloupes-juice		0.000068	9	1.000
1.000					
142 9A	Melons-cantaloupes-pulp		0.000068	9	1.000
1.000					
143 9A	Casabas		0.000068	9	1.000
1.000					
144 9A	Crenshaws		0.000068	9	1.000
1.000					

### Attachment 3. Mevinphos Acute Dietary Analysis: Residue Distribution Files

145 9A	Melons-honeydew	0.000068	9	1.000
1.000				
146 9A	Melons-persian	0.000068	9	1.000
1.000				
147 9A	Watermelon	0.000068	9	1.000
1.000				
148 9B	Cucumbers	0.000160	5	1.000
1.000				
150 9B	Squash-summer	0.000300	13	1.000
1.000				
155 8	Peppers-sweet(garden)	0.000046	12	1.000
1.000				
156 8	Peppers-chilli incl jalapeno	0.000045	11	1.000
1.000				
157 8	Peppers-other	0.000045	11	1.000
1.000				
159 8	Tomatoes-whole	0.000030	15	1.000
1.000				
160 8	Tomatoes-juice	0.000030	15	1.500
1.000				
161 8	Tomatoes-puree	0.000030	15	3.300
1.000				
162 8	Tomatoes-paste	0.000030	15	5.400
1.000				
163 8	Tomatoes-catsup	0.000030	15	2.500
1.000				
166 4B	Celery	0.000034	4	1.000
1.000				
168 5A	Broccoli	0.000071	1	1.000
1.000				
170 5A	Cabbage-green and red	0.000100	2	1.000
1.000				
171 5A	Cauliflower	0.000850	3	1.000
1.000				
176 4A	Lettuce-leafy varieties	0.000150	7	1.000
1.000				
182 4A	Lettuce-unspecified	0.000150	7	1.000
1.000				
186 4A	Spinach	0.000190	16	1.000
1.000				
192 4A	Lettuce-head varieties	0.000100	8	1.000
1.000				
195 O	Grapes-leaves	0.000090	6	1.000
1.000				
241 6AB	Peas (garden)-green	0.000032	10	1.000
1.000				
315 O	Grapes-wine and sherry	0.000090	6	1.000
1.000				
383 5B	Cabbage-savoy	0.000100	2	1.000
1.000				
384 4B	Celery juice	0.000034	4	1.000

### Attachment 3. Mevinphos Acute Dietary Analysis: Residue Distribution Files

1.000					
392 O	Grapes-juice-concentrate	0.000090	6	3.600	
1.000					
405 6B	Peas-succulent/blackeye/cowpea	0.000032	10	1.000	
1.000					
416 O	Strawberries-juice	0.000160	14	1.000	
1.000					
423 8	Tomatoes-dried	0.000030	15	14.300	
1.000					
436 9A	Watermelon-juice	0.000068	9	1.000	
1.000					

# Attachment 3. Mevinphos Acute Dietary Analysis: Residue Distribution Files

U.S. Environmental Protection Agency  
Ver. 6.78

DEEM ACUTE analysis for MEVINPHOS  
(1989-92 data)

Residue file: mevinphos2.R96  
factor #2 NOT used.

Adjustment

Analysis Date: 10-18-1999/11:44:18      Residue file dated:  
10-12-1999/09:45:45/8

**Acute Reference Dose (aRfD) = 0.001000 mg/kg body-wt/day**

MC iterations = 1000      MC list in residue file      MC seed =  
10

=====  
=====

Summary calculations:

99.9th Percentile		95th Percentile		99th Percentile	
Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
-----	-----	-----	-----	-----	-----
U.S. pop - all seasons:					
0.000023	2.35	0.000000	0.00	0.000004	0.42
Males (13-19 years):					
0.000023	2.27	0.000000	0.00	0.000003	0.35
Males (20+ years):					
0.000018	1.82	0.000000	0.00	0.000004	0.39

U.S. Environmental Protection Agency  
Ver. 6.78

DEEM ACUTE analysis for MEVINPHOS  
(1989-92 data)

Residue file: mevinphos2.R96  
factor #2 NOT used.

Adjustment

Analysis Date: 10-18-1999/12:06:32      Residue file dated:  
10-18-1999/11:37:01/8

# Attachment 3. Mevinphos Acute Dietary Analysis: Residue Distribution Files

**Acute Reference Dose (aRfD) = 0.00033 mg/kg body-wt/day**

MC iterations = 1000      MC list in residue file      MC seed = 10

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Summary calculations:

99.9th Percentile		95th Percentile		99th Percentile	
Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
-----	-----	-----	-----	-----	-----
All infants (<1 year):					
0.000015	4.52	0.000000	0.00	0.000000	0.00
Nursing infants (<1 year):					
0.000004	1.31	0.000000	0.00	0.000000	0.00
Non-nursing infants (<1 yr):					
0.000020	6.06	0.000000	0.00	0.000000	0.03
Children (1-6 years):					
0.000055	16.72	0.000000	0.00	0.000005	1.66
Children (7-12 years):					
0.000029	8.90	0.000000	0.00	0.000005	1.47
Females (13+/preg/not nsg):					
0.000018	5.32	0.000000	0.00	0.000003	1.03
Females (13+/nursing):					
0.000023	6.99	0.000000	0.06	0.000006	1.90
Females (13-19 yrs/np/nn):					
0.000021	6.23	0.000000	0.00	0.000003	0.91
Females (20+ years/np/nn):					
0.000021	6.38	0.000000	0.01	0.000005	1.37
Females (13-50 years):					
0.000020	6.15	0.000000	0.00	0.000004	1.18

# Attachment 5: Mevinphos Chronic Dietary Exposure Analysis

U.S. Environmental Protection Agency

Ver. 6.76

DEEM Chronic analysis for MEVINPHOS

1989-92 data

Residue file: C:\\$MyFiles\Mevinphos\mevinphos2.R96

Adjust.

#2 NOT used

Analysis Date 10-18-1999

Residue file dated:

10-18-1999/11:37:01/8

Reference dose (RfD) = 0.000025 mg/kg bw/day

Food Crop			RESIDUE	
Adj.Factors				
Code	Grp	Food Name	(ppm)	#1
#2				
13	O	Grapes	0.000090	1.000
1.000				
14	O	Grapes-raisins	0.000090	4.300
1.000				
15	O	Grapes-juice	0.000090	1.200
1.000				
17	O	Strawberries	0.000160	1.000
1.000				
141	9A	Melons-cantaloupes-juice	0.000068	1.000
1.000				
142	9A	Melons-cantaloupes-pulp	0.000068	1.000
1.000				
143	9A	Casabas	0.000068	1.000
1.000				
144	9A	Crenshaws	0.000068	1.000
1.000				
145	9A	Melons-honeydew	0.000068	1.000
1.000				
146	9A	Melons-persian	0.000068	1.000
1.000				
147	9A	Watermelon	0.000068	1.000
1.000				
148	9B	Cucumbers	0.000160	1.000
1.000				
150	9B	Squash-summer	0.000300	1.000
1.000				
155	8	Peppers-sweet (garden)	0.000046	1.000
1.000				
156	8	Peppers-chilli incl jalapeno	0.000045	1.000
1.000				
157	8	Peppers-other	0.000045	1.000
1.000				

# Attachment 5: Mevinphos Chronic Dietary Exposure Analysis

159 8	Tomatoes-whole	0.000030	1.000
1.000			
160 8	Tomatoes-juice	0.000030	1.500
1.000			
161 8	Tomatoes-puree	0.000030	3.300
1.000			
162 8	Tomatoes-paste	0.000030	5.400
1.000			
163 8	Tomatoes-catsup	0.000030	2.500
1.000			
166 4B	Celery	0.000034	1.000
1.000			
168 5A	Broccoli	0.000071	1.000
1.000			
170 5A	Cabbage-green and red	0.000100	1.000
1.000			
171 5A	Cauliflower	0.000850	1.000
1.000			
176 4A	Lettuce-leafy varieties	0.000150	1.000
1.000			
182 4A	Lettuce-unspecified	0.000150	1.000
1.000			
186 4A	Spinach	0.000190	1.000
1.000			
192 4A	Lettuce-head varieties	0.000100	1.000
1.000			
195 O	Grapes-leaves	0.000090	1.000
1.000			
241 6AB	Peas (garden)-green	0.000032	1.000
1.000			
315 O	Grapes-wine and sherry	0.000090	1.000
1.000			
383 5B	Cabbage-savoy	0.000100	1.000
1.000			
384 4B	Celery juice	0.000034	1.000
1.000			
392 O	Grapes-juice-concentrate	0.000090	3.600
1.000			
405 6B	Peas-succulent/blackeye/cowpea	0.000032	1.000
1.000			
416 O	Strawberries-juice	0.000160	1.000
1.000			
423 8	Tomatoes-dried	0.000030	14.300
1.000			
436 9A	Watermelon-juice	0.000068	1.000
1.000			





# Attachment 5: Mevinphos Chronic Dietary Exposure Analysis

U.S. Environmental Protection Agency

Ver. 6.76

DEEM Chronic analysis for MEVINPHOS

(1989-92 data)

Residue file name: C:\\$MyFiles\Mevinphos\mevinphos2.R96

Adjustment factor

#2 NOT used.

Analysis Date 10-18-1999/11:37:40

Residue file dated:

10-18-1999/11:37:01/8

Reference dose (RfD, CHRONIC) = .000025 mg/kg bw/day

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Total exposure by population subgroup

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Total Exposure

Population Percent of Subgroup Rfd	mg/kg body wt/day
-----	-----
U.S. Population (total) 0.8%	0.000000
U.S. Population (spring season) 0.8%	0.000000
U.S. Population (summer season) 1.0%	0.000000
U.S. Population (autumn season) 0.8%	0.000000
U.S. Population (winter season) 0.7%	0.000000
Northeast region 0.9%	0.000000
Midwest region 0.8%	0.000000
Southern region 0.7%	0.000000
Western region 0.9%	0.000000
Hispanics 0.8%	0.000000
Non-hispanic whites	0.000000

# Attachment 5: Mevinphos Chronic Dietary Exposure Analysis

0.8%	
Non-hispanic blacks	0.000000
0.7%	
Non-hisp/non-white/non-black)	0.000000
1.1%	
All infants (< 1 year)	0.000000
0.7%	
Nursing infants	0.000000
0.5%	
Non-nursing infants	0.000000
0.8%	
Children 1-6 yrs	0.000000
1.7%	
Children 7-12 yrs	0.000000
1.0%	
Females 13-19(not preg or nursing)	0.000000
0.6%	
Females 20+ (not preg or nursing)	0.000000
0.8%	
Females 13-50 yrs	0.000000
0.7%	
Females 13+ (preg/not nursing)	0.000000
0.6%	
Females 13+ (nursing)	0.000000
1.1%	
Males 13-19 yrs	0.000000
0.6%	
Males 20+ yrs	0.000000
0.7%	
Seniors 55+	0.000000
0.8%	
Pacific Region	0.000000
1.0%	

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